

Remarks

The undersigned would like to thank Examiner Dexter for the courtesies extended during the telephone interview conducted September 24, 2004. During that interview, proposed amendments to claims 1 and 10 were discussed. The Examiner suggested that Applicants' more clearly define that the die is adjacent to only one side of the cutting blade. The possibility of such an amendment overcoming Sano '881 was also discussed.

Upon entry of this Amendment, Claims 1-5, 10, and 12-17 will be pending in the application. Claim 1 has been amended to recite that the die is adjacent to one side of the cutting blade; and claim 10 has also been amended to recite that both die and pad are adjacent to one side of the cutting blade. In addition, claims 1 and 10 have been amended to more clearly define that "an edge" of the aluminum sheet is being trimmed.

As discussed in the interview, support for the amendments to claims 1 and 10 are found in FIGS. 2 and 3 of the Applicants' application. FIGS. 2 and 3 depict the die (22) and the pad (24) as being adjacent to only one side of the cutting blade (26). Additionally, FIGS. 2 and 3 depict the aluminum sheet 20 as extending outward from the die and having an edge/unsupported end that is trimmed by the cutting blade (26).

In contrast to amended claims 1 and 10, Sano '881 discloses a die that is adjacent to two sides of the cutting blade/punch. This orientation can be seen in FIG. 1 where the die 8 is adjacent to two sides of the cutting blade 1. FIG. 5 of the prior art depicts a similar orientation in that the die 18 is adjacent to two sides of the cutting blade 11. In FIG. 8, Sano '881 discloses a die 52 being adjacent to two sides of the cutting blade 51. A similar orientation is found in FIGS. 13 and 14 of Sano '881 where the die 62 is adjacent to two sides of the cutting blade. In Sano '881, this orientation of having the die block adjacent to two sides of the cutting blade is

necessary in order to punch a hole in the metallic workpiece. That prior art orientation sharply contrasts with Applicants' amended claims 1 and 10 that require the die to be adjacent to only one side of the cutting blade.

Summary of Rejections and Objections

Claims 1-5, 10, and 12-17 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sano et al. (5,235,881) or, in the alternative, stand rejected under 35 U.S.C. 103(a) as being obvious over Sano et al. (5,235,881).

Legal Precedent Regarding 35 U.S.C. §102

Before addressing the rejections under 35 U.S.C. § 102, the Applicants would like to respectfully address legal precedent regarding § 102. In *Minnesota Mining & Mfg. Co. v. Johnson & Johnson*, 976 F.2d 1559 (Fed.Cir.1992), the Court held that "under 35 U.S.C. § 102, anticipation of a patent claim must be proven by showing that each element of the claim in issue is found, either expressly or under principles of inherency, in a single prior art reference". Furthermore, the Court in *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264 (Fed.Cir.1991) held that "to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient". Finally, in *Ex Parte Levy*, 17 USPQ2d 1461 (Bd. Pat. App. & Inter. 1990), the Board held that "in relying upon the theory of inherency, the Examiner must

provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teaching of the applied prior art".

Rejection of Claims 1-5, 10, and 12-17 under 35 U.S.C. 102(b)

In paragraph 5 of the Office Action, the Examiner has rejected claim 1 under 35 U.S.C. 102(b) as being anticipated by Sano '881. As amended, Applicants' claims 1 recites "providing a die adjacent to one side of a cutting blade." As discussed above, Sano '881 discloses a piercing die that has a die that is adjacent to two sides of the cutting blade/punch. Examples of this orientation are found in FIGS. 1, 5, 8, 13, and 14 of Sano '881 and are discussed more fully above. One skilled in the art, reading the disclosure of Sano '881, would not remove the die from being adjacent to two sides of the cutting blade because this orientation is necessary for the punching operation. Accordingly, it is submitted that amended claim 1, and the claims that depend therefrom, are patentable over the prior art of record.

In paragraph 5 of the Office Action, the Examiner has rejected claim 10 under 35 U.S.C. 102(b) as being anticipated by Sano '881. As amended, Applicants' claim 10 recites "providing a die and a pad adjacent to one side of a cutting blade." As discussed above, Sano '881 discloses a piercing die that has a die that is adjacent to two sides of the cutting blade/punch. Examples of this orientation are found in FIGS. 1, 5, 8, 13, and 14 of Sano '881 and are discussed more fully above. One skilled in the art, reading the disclosure of Sano '881, would not remove the die from being adjacent to two sides of the cutting blade because this orientation is necessary for the punching operation. Accordingly, it is submitted that amended claim 10, and the claims that depend therefrom, are patentable over the prior art of record.

Legal Precedent Regarding 35 U.S.C. §103

Before addressing the rejections under 35 U.S.C. § 103, the Applicants would like to respectfully address legal precedent regarding §103. Under § 103, a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 if the subject matter sought to be patented and the prior art are such that the subject matter as a whole *would have been obvious* at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103(a). The language "obvious at the time the invention was made" has been held by the Courts to mean that it is inappropriate for the Examiner to use "hindsight" in determining obviousness. *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082 (Fed. Cir.1985). The Court in *In re Vaack* held that "a proper analysis under § 103 requires, inter alia, consideration of two factors: (i) whether there is some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings and (ii) whether the prior art would have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. Both the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure". *In re Vaack*, 947 F.2d 488 (Fed. Cir. 1991).

Rejection of Claims 1-5, 10, and 12-17 under 35 U.S.C. 103(a)

In paragraph 5 of the Office Action, the Examiner has rejected claims 1, 2, 4, 10 and 12 under 35 U.S.C. 103(a) as being obvious to one of ordinary skill in the art. Specifically, the Examiner argues that selecting the cutting angle of 10 to 30 degrees would be the mere discovery of the optimum or workable ranges within the general conditions of the prior art. However, it is

commonly known in the field of piercing dies that a cutting angle of 0 degrees is the optimal cutting angle for punching a hole in a metallic workpiece. This 0 degree orientation (as measured by the undersigned) between the punch and the workpiece is seen in FIG. 1 of Sano '881. In contrast, 0 degrees is not the preferred angle in Applicants' invention. Fig. 9 of the Applicants' application shows that the cutting angle should be within the range of 10 to 30 degrees. Fig. 9 also shows that at 0 degrees, the severity of slivers would be unreasonable. "The use of a zero degree cutting angle has been found to produce an unacceptably high amount of slivers for both 6111-T4 and 6022-T4 aluminum alloy sheets." Applicants' specification page 4, lines 6-8. Applicants' application on page 17, lines 10-11, states that "0° cutting generates the largest amount of slivers for both 6111-T4 and 6022-T4." Additionally, in order for the metallic workpiece to be inclined in the Sano '881 patent, the punch is required to have an inclined working end face that is parallel to the incline of the die block. In other words, the surface of the punch that is adjacent to the metallic workpiece must have a parallel orientation to the metallic workpiece. This is illustrated in FIG. 5 of the Sano '881 patent where the inclined working face (11a) is parallel to the top surface of the die block (18). This configuration is also described in column 9, lines 56-57, and column 3, lines 43-46, of Sano. However, in applicants' invention the surface of the cutting blade that is adjacent to the aluminum sheet does not have to be in a parallel orientation to the incline of the aluminum sheet (see Figs. 1, 2, and 3 of Applicants' application). Because the Sano '881 patent's preferable cutting angle is 0 degrees, as opposed to Applicants' 10 to 30 degree cutting angle, Applicants' respectfully submit that the Sano '881 patent actually teaches away from Applicants' invention and should not be used to reject Applicants' claims under 103(a). Therefore, claims 1, 2, 4, 10 and 12 are in condition for allowance.

The Examiner also rejects, in paragraph 5 of the Office Action, claims 3, 5, 16, and 17 under 35 U.S.C. 103(a) as being obvious to one of ordinary skill in the art. Examiner argues that Sano '881 teaches a cutting tool with substantially no edge radius. It is commonly known in the field of piercing dies that in order for the punch to work correctly the punch must have a radius as close to 0 as possible. If the punch of a piercing die has a large radius, it will not have the ability to puncture the hole in the metallic workpiece. In contrast, Applicants' invention works effectively over a range of radii and does not require that the blade edge radius be close to 0 (see Fig. 11). The ability of Applicants' invention to work over a wide range of radii is in contrast to the Sano '881 patent that requires the radius of the punch be as close to 0 as possible in order for the punch to create a hole in the metallic sheet. Applicants' submit that Sano '881 teaches away from Applicants' disclosed radii range because Sano '881 would lead someone with ordinary skill in the art to use a punch with a radius that is as close to 0 as possible. Since Sano '881 teaches away from Applicants' radii range, Sano '881 should not be used as a basis to reject Applicants' claims under 103(a). Therefore, claims 3, 5, 16, and 17 are in condition for allowance.

In view of the foregoing amendments and remarks, Applicants' respectfully submit that claims 1-5, 10, and 12-17 are patentable over the prior art of record. Accordingly, an early notice of allowance of this application is respectfully requested.

In the event that any outstanding matters remain in connection with this application, the Examiner is invited to telephone the undersigned at (724) 337-1221 to discuss such matters.

Respectfully submitted,

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